HT12E Pushbutton Switch Extension

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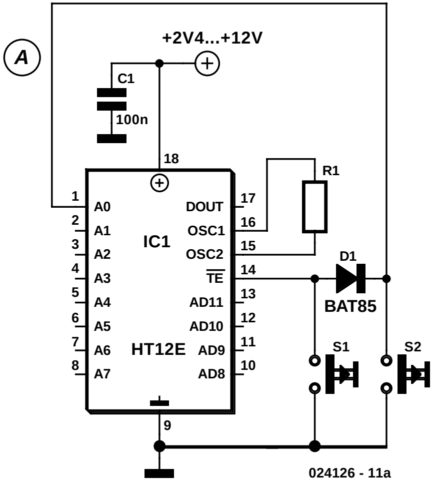
We have already used the Holtek HT12E as an encoder in several previous projects, primarily for remote controls. This encoder is triggered by a Low level on the TE (Transmission Enable) input. The transmitted address (and optionally data) can be set on the A0–A7 and AD8–AD11 inputs, for instance using DIP switches (internal pull-up resistors are present). The trick is now to change the address at the same time by pressing a second button. This is possible if a diode is added to the circuit.

Schematic diagram A shows the simplest version. S1 is connected according to the standard application circuit for the IC, while S2 can also be used to connect the TE input to ground via a diode. When S2 is pressed, address input A0 is also connected directly to ground (any other address pin can also be used). If S1 is pressed, the diode is reverse biased and the address remains 0.

The disadvantage of this design is that in practice if S2 is



released at the ‘right’ time, address input A0 will be High even though a transmission cycle is still in progress, causing address 0 to be accepted one time by the decoder at the receiver end. A solution to this problem is provided by the design shown in diagram B. Here each pushbutton switch has its own diode and address 0 is not used by the receiver. Up to 12 pushbuttons can be connected in this manner. If a smaller number are used, the remaining addresses can be used to distinguish between various applications or devices.

For more information about the encoder, refer to the IC manufacturer’s website at www.holtek.com.

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